## ELECTRICAL GENERAL NOTES

- 1. DO NOT SCALE DRAWINGS. VERIFY DIMENSIONS IN FIELD PRIOR TO COMMENCEMENT OF WORK.
- 2. FINAL CONNECTIONS & ROUGH—IN REQUIREMENTS TO EQUIPMENT SHALL BE PER MANUFACTURER'S 25. VERIFY EXACT LOCATIONS OF EXISTING AND NEW UNDERGROUND UTILITIES, PIPING AND RACEWAY APPROVED WIRING DIAGRAMS, DETAILS AND INSTRUCTIONS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE MATERIALS AND EQUIPMENT COMPATIBLE WITH EQUIPMENT ACTUALLY
- 3. ALL EMPTY RACEWAY SYSTEMS SHALL HAVE A #12 PULLWIRE OR EQUAL AND SHALL BE IDENTIFIED AT ALL JUNCTION, PULL AND TERMINATION POINTS, USING PERMANENT METALLIC TAGS. TAG SHALL INDICATE INTENDED USE OF CONDUIT, ORIGINATION AND TERMINATION POINTS OF EACH INDIVIDUAL CONDUIT. STUB CONDUIT OUT 6" INTO AN ACCESSIBLE AREA. CAP OPEN ENDS NOT TERMINATED IN A JUNCTION BOX.
- 4. FIXTURES INDICATED AS BEING ON EMERGENCY OR NIGHT LIGHT CIRCUITS SHALL BE PROVIDED WITH SELF-CONTAINED BATTERY POWERED INVERTER UNIT FOR DIRECT MOUNTING IN FIXTURE. PROVIDE UNIT TEST SWITCH. DESIGN AND WIRE UNIT TO AUTOMATICALLY TRANSFER TO BATTERY SUPPLY ON LOSS OF NORMAL AC POWER AND TO OPERATE FOR MINIMUM 1-1/2 HOURS.
- 5. IT IS THE INTENT OF THESE DRAWINGS AND SPECIFICATIONS TO ESTABLISH A STANDARD OF QUALITY. 29. PANEL DIRECTORIES SHALL BE REMOVABLE. SUBMIT PROPOSED SCHEDULE OF DIRECTORIES TO OWNER
- 6. CONTRACTOR SHALL REVIEW ARCHITECTURAL, STRUCTURAL, MECHANICAL AND OTHER DRAWINGS PRIOR
- CONTRACTOR SHALL VISIT SITE PRIOR TO BID AND VERIFY THAT CONDITIONS ARE AS INDICATED. CONTRACTOR SHALL REPORT DISCREPANCIES TO THE ARCHITECT AND INCLUDE IN HIS BID ALL COSTS REQUIRED TO MAKE HIS WORK MEET EXISTING CONDITIONS.
- 8. PROPOSED SUBSTITUTIONS OF ELECTRICAL EQUIPMENT OR REQUEST FOR "OR EQUAL" OR "APPROVED EQUAL" LISTING SHALL BE SUBMITTED TO ARCHITECT NOT LESS THAN TEN (10) WORKING DAYS PRIOR
- 9. WORK SHALL BE PERFORMED IN A WORKMANLIKE MANNER TO THE SATISFACTION OF THE ARCHITECT.
- 10. WORK, MATERIALS AND EQUIPMENT SHALL CONFORM TO THE LATEST EDITIONS OF LOCAL, STATE AND NATIONAL CODES AND ORDINANCES.
- 11. PROVIDE PERMITS AND INSPECTIONS REQUIRED.

TO BID.

- 12. GUARANTEE THE INSTALLATION AGAINST DEFECTS IN MATERIALS AND WORKMANSHIP WHICH MAY OCCUR 34. ALL WIRING SHALL BE INSTALLED IN LISTED METALLIC RACEWAYS. RACEWAYS IN SLAB-ON-GRADE OR UNDER NORMAL USAGE FOR A PERIOD OF ONE YEAR AFTER OWNER'S ACCEPTANCE. DEFECTS SHALL BE PROMPTLY REMEDIED WITHOUT COST TO THE OWNER.
- 13. PROVIDE RECORD DRAWINGS TO ARCHITECT. DRAWINGS SHALL INCLUDE ALL ADDENDUM ITEMS, CHANGE ORDERS, ALTERATIONS, REROUTINGS, ETC.
- 14. VERIFY EXACT LOCATION OF EQUIPMENT TO BE FURNISHED BY OTHERS PRIOR TO ROUGH-IN.
- 15. SYSTEMS SHALL BE TESTED FOR PROPER OPERATION. IF TESTS SHOW THAT WORK IS DEFECTIVE, CONTRACTOR SHALL MAKE CORRECTIONS NECESSARY AT NO COST TO OWNER.
- 16. SYSTEM OUTAGES SHALL BE PERMITTED ONLY AT TIMES APPROVED BY OWNER, IN WRITING. WORK WITH THE OWNER'S MAINTENANCE PERSONNEL ADVISED OF SUCH WORK. SERVICE SHALL BE MAINTAINED 37.

  ALL ELECTRICAL SYSTEMS COMPONENTS SHALL BE LISTED OR LABELED BY U.L. OR OTHER RECOGNIZED TO EXISTING AREAS DURING CONSTRUCTION. CONTRACTOR SHALL PROVIDE PORTABLE GENERATORS, TEMPORARY POWER, CABLES, OUTLETS, ETC., AS REQUIRED TO MAINTAIN CONTINUITY OF SERVICE. PLACEMENT OF SUCH PORTABLE EQUIPMENT SHALL BE SUBJECT TO OWNER APPROVAL.
- 17. WIRE SHALL BE COPPER, 75°C RATED FOR GENERAL USE. FOR HID FIXTURES AND WIRING WITHIN 3 INCHES OF FLUORESCENT BALLASTS WIRE SHALL BE COPPER, MINIMUM 90°C RATED. SIZES INDICATED ARE FOR INSTALLATION IN A MAXIMUM 30°C AMBIENT. CONDUCTOR AMPACITY SHALL BE DERATED FOR HIGHER AMBIENT INSTALLATIONS.
- SPLICE KIT OR APPROVED EQUAL. SEAL ENDS OF CONDUITS AND DUCTS WITH "DUCTSEAL" OR APPROVED EQUAL.
- 19. PRESENT SHOP DRAWING SUBMITTAL DATA AT ONE TIME, BOUND IN THREE-RING BINDERS, INDEXED IN 41. ALL EQUIPMENT SUCH AS SWITCHBOARDS, DISTRIBUTION BOARDS, DISCONNECT SWITCHES, AND A NEAT AND ORDERLY MANNER. PARTIAL SUBMITTALS WILL NOT BE ACCEPTED. SUBMITTALS SHALL INCLUDE BUT NOT BE LIMITED TO: LIGHTING FIXTURES, TRANSFORMERS, SWITCHGEAR, PANELBOARDS, WIRING DEVICES, SAFETY SWITCHES, LAMPS, CONDUIT, AND CONDUIT FITTINGS.
- 20. CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING EQUIPMENT WHICH IS DAMAGED DUE TO INCORRECT FIELD WIRING PROVIDED UNDER THIS SECTION OR FACTORY WIRING IN EQUIPMENT PROVIDED UNDER THIS SECTION.
- 21. CONTRACTOR'S FAILURE TO ORDER OR RELEASE ORDER FOR MATERIALS AND/OR EQUIPMENT WILL NOT BE ACCEPTED AS A REASON TO SUBSTITUTE ALTERNATE MATERIALS OR EQUIPMENT.
- 22. SYSTEMS SHALL BE COMPLETE, OPERABLE AND READY FOR CONTINUOUS OPERATION. LIGHTS, SWITCHES, RECEPTACLES, MOTORS, ETC., SHALL BE CONNECTED AND OPERABLE.

CATALOG NUMBER

STL48LMVOLT50WLP835NX (EL14L) | 50 |

E1W-WL-2-L35-1C-UNV-SU-WA 50

OLVTWM

L7XLEDT24GSKT

ZL2L482300LMVOLTLP835

A01SIA2LED35KUNVWAK6

FEM4LED5L35IMAFLMVOLT | 50 |

FEM4LED5L35IMAFLMVOLT | 50 |

23. WIRING DEVICES SHALL BE SPECIFICATION GRADE AND RATED AT 20 AMPERES. THE DEVICE PLATES SHALL BE LEXAN OR NYLON (IN KITCHENS WITH STAINLESS STEEL COUNTERS DEVICE PLATES SHALL BE STAINLESS STEEL). THE COLOR OF THE DEVICES AND COVER PLATES SHALL BE AS DIRECTED BY

VOLT

AMPS

MOUNTING

SURFACE

SURFACE, UNLESS OTHERWISE NOTE

WALL @ +96"

SURFACE, UNLESS OTHERWISE NOTED

WALL @ +96"

RECESSED

SURFACE

50 | WALL ABOVE MIRROR

- 24. PROVIDE SEPARATE NEUTRAL CONDUCTOR FOR EACH GROUND FAULT CIRCUIT.
- SYSTEMS PRIOR TO TRENCHING. PROVIDE NECESSARY TRENCHING, BACKFILL, EXCAVATION, SUPPORTS, SERVICE FEEDERS (CONDUIT AND/OR WIRE), PULLBOXES, TRANSFORMER PADS, SAWCUTTING AND PATCHING, CONCRETE/PAVING, ETC., REQUIRED. BACKFILL TRENCHES TO 90% COMPACTION AND PATCH TO MATCH EXISTING. CONTRACTOR SHALL OBTAIN AND VERIFY EXACT UTILITY COMPANY DRAWINGS AND
- 26. BOXES SHALL BE MINIMUM 4" SQUARE WITH REQUIRED EXTENSIONS & PLASTER OR TILE RINGS.
- 27. SWITCHBOARDS, DISTRIBUTION BOARDS, PANELBOARDS, DISCONNECT SWITCHES, ETC. SHALL BE MANUFACTURED BY GENERAL ELECTRIC, SIEMENS, SQUARE 'D' OR CUTLER-HAMMER. BOLT FREE STANDING EQUIPMENT TO 4" HIGH CONCRETE HOUSEKEEPING PADS.
- WITH FULLY AUTOMATIC TWO RATE CHARGER, NICKEL CADMIUM BATTERY, AC "ON" PILOT LIGHT, AND 28. PROVIDE ENGRAVED NAMEPLATES ON SWITCHBOARDS, PANELBOARDS, DISCONNECT SWITCHES, MOTOR CONTROL CENTERS, TRANSFORMERS, ETC., INDICATING EQUIPMENT DESIGNATION (OR DESIGNATION OF EQUIPMENT SERVED) AND VOLTAGE.
  - FOR APPROVAL. ROOM NAMES AND NUMBERS SHALL BE AS DIRECTED BY OWNER. DIRECTORIES SHALL BE TYPED AND INSTALLED UNDER CLEAR PLASTIC COVERS.
  - 30. DISCONNECT SWITCHES SHALL BE HEAVY DUTY TYPE. INSTALL DISCONNECT SWITCH ON TWO 24" LONG UNISTRUT CHANNELS DRILLED AND BOLTED TO HVAC UNIT FRAME WHERE POSSIBLE (COORDINATE LOCATION W/ HVAC MANUFACTURER TO AVOID WARRANTY INFRACTIONS). SILICONE SEAL ALL HOLES IN
  - 31. CIRCUIT BREAKERS SHALL BE BOLT-ON TYPE AND FUSES SHALL BE BUSSMANN.
  - 32. PROVIDE 4" HIGH CONCRETE EQUIPMENT PADS BENEATH SWITCHBOARDS, MOTOR CONTROL CENTERS, TRANSFORMERS, ETC.
  - 33. IMMEDIATELY AFTER AWARD OF CONTRACT, CONTRACTOR SHALL VERIFY AVAILABLE PHYSICAL SPACE AND AMPACITY OF EXISTING PANELBOARDS, SWITCHBOARDS, DISTRIBUTION BOARDS, MOTOR CONTROL CENTERS, ETC., AND PROVIDE WRITTEN DOCUMENTATION OF FINDINGS TO THE ENGINEER. DOCUMENTATION SHALL INCLUDE A MINIMUM 24 HOUR RECORDING AMPERE READING ON ALL EXISTING SWITCHGEAR BEING UTILIZED FOR THIS PROJECT.
  - BELOW GRADE SHALL BE SCHEDULE 40 PVC. TRANSITIONS FROM BELOW TO ABOVE GRADE SHALL BE WITH RIGID STEEL ELBOWS WITH P.V.C. JACKET OR APPROVED EQUAL PROTECTION. EMT FITTINGS SHALL BE STEEL. CONNECTORS SHALL BE INSULATED THROAT TYPE. TYPE MC CABLE MAY BE USED FOR BRANCH CIRCUITS #8 AWG AND SMALLER.
  - 35. NON-METALLIC AND FLEXIBLE METAL CONDUITS SHALL HAVE A CODE SIZED COPPER GROUNDING CONDUCTOR. INCREASE CONDUIT SIZE AS REQUIRED.
  - 36. FINAL CONNECTIONS TO MOTORS, TRANSFORMERS AND OTHER VIBRATING EQUIPMENT SHALL BE WITH SEAL-TITE FLEX (3'-0" MAXIMUM LENGTH) AND APPROVED FITTINGS. DO NOT SECURE CONDUITS, DISCONNECTS OR DEVICES TO DUCTWORK OR MECHANICAL EQUIPMENT.
  - TESTING FACILITY.
  - 38. WIRE TERMINATION PROVISIONS FOR PANELBOARDS, CIRCUIT BREAKERS, SAFETY SWITCHES, AND ALL OTHER ELECTRICAL APPARATUS SHALL BE LISTED AS SUITABLE FOR 75°C.
  - 39. RECEPTACLES INSTALLED OUTSIDE, ON THE BUILDING EXTERIOR OR ROOF, IN KITCHENS OR WITHIN 6 FEET HORIZONTALLY FROM A SINK OR DRINKING FOUNTAIN UNLESS LOCATED BELOW A COUNTER OR OTHERWISE PROTECTED SHALL BE GFCI TYPE OR PROTECTED BY GFI CIRCUIT BREAKER.
- 18. SPLICES IN EXTERIOR PULLBOXES AND MANHOLES SHALL BE MADE WATERPROOF USING "SCOTCHCAST" 40. WHEN COMPLETE THE ELECTRICAL CONTRACTOR SHALL MEASURE THE STEADY STATE LOAD CURRENTS AT EACH PANEL BOARD FEEDER. SHOULD THE DIFFERENCE AT ANY PANEL BOARD BETWEEN PHASES EXCEED 20%, THE ELECTRICAL CONTRACTOR SHALL REARRANGE CURRENTS IN THE PANEL TO BALANCE PHASE LOADS.
  - PANELBOARDS SHALL BE BY THE SAME MANUFACTURER. ALL FUSES PROVIDED SHALL BE OF THE SAME MANUFACTURER.
  - 42. COORDINATE THE LOCATION OF LIGHTING FIXTURES WITH THE ARCHITECTURAL REFLECTED CEILING PLAN. UNLESS OTHERWISE VERIFIED IN WRITING THE REFLECTED CEILING PLAN LOCATIONS SHALL GOVERN.
  - 43. COORDINATE THE LOCATION OF ALL WALL MOUNTED EQUIPMENT WITH THE ARCHITECTURAL INTERIOR AND EXTERIOR ELEVATIONS. UNLESS OTHERWISE VERIFIED IN WRITING THE ARCHITECTURAL DRAWINGS SHALL GOVERN.
  - 44. ALL WORK SPECIFIED HEREIN SHALL CONFORM TO THE APPLICABLE REQUIREMENTS OF THE AMERICANS WITH DISABILITIES ACT AND ARCHITECTURAL BARRIERS ACT ACCESSIBILITY GUIDELINES - 2004.

4' WALL MOUNTED ETCHED DIFFUSER VANITY LIGHT

4' FLUORESCENT STRIP FIXTURE WITH WIRE GUARD

4' WALL MOUNTED INDIRECT/DIRECT LED

WALL MOUNTED VAPOR TIGHT LED

REMARKS

6" LED DOWNLIGHT (EL OPTION FOR FIXTURES INDICATED AS EMERGENCY)

SURFACE MOUNTED VOLUMETRIC FLUORESCENT (EL OPTION FOR FIXTURES INDICATED AS EMERGENCY)

FIXTURE SCHEDULE

4' FULLY ENCLOSED LED

8' FULLY ENCLOSED LED

LAMP TYPE

LED

LED

LED

LED

LED

## ELECTRICAL SYMBOLS

INDICATES MOUNTING HEIGHTS ARE TO CENTERLINE OF DEVICE ABOVE FINISH FLOOR OR FINISH GRADE

INDICATES ABOVE FINISHED FLOOR

INDICATES CONDUIT WITH PULL-LINE ONLY

INDICATES GROUND FAULT CIRCUIT INTERRUPTER GFCI CIRCUITS PROTECTED WITH GFCI SHALL BE PROVIDED WITH DEDICATED NEUTRALS

INDICATES GROUND FAULT PROTECTION

INDICATES GROUND

HELCO INDICATES LOCAL UTILITY

INDICATES PANEL

INDICATES WEATHER-PROOF (NEMA 3R)

LETTER INDICATES LIGHT FIXTURE TYPE AS INDICATED ON FIXTURE SCHEDULE

FLUORESCENT FIXTURE

⊢O⊢ FLUORESCENT FIXTURE

DOWNLIGHT FIXTURE

DOWNLIGHT FIXTURE ON EMERGENCY CIRCUIT OR INTEGRAL BATTERY BACK-UP

WALL MOUNTED FIXTURE

EXIT LIGHT WITH DIRECTIONAL ARROWS AS INDICATED CEILING MOUNTED

SINGLE POLE SWITCH @ +48" UNLESS NOTED

3-WAY POLE SWITCH @ +48" UNLESS NOTED

THERMAL OVERLOAD SWITCH

VOLT

277/

DUPLEX RECEPTACLE @ +18" UNLESS NOTED

RECEPTACLE INSTALLED ABOVE COUNTER

DOUBLE DUPLEX RECEPTACLE @ +18" UNLESS NOTED

MAIN SWITCHBOARD, MOTOR CONTROL CENTER OR DISTRIBUTION BOARD

CONCRETE PULLBOX WITH HEAVY DUTY STEEL TRAFFIC COVER

**TRANSFORMER** 

HOMERUN CONDUIT - STROKES INDICATE QUANTITY OF CONDUCTORS

CONDUIT AND/OR WIRE CONCEALED IN WALL OR ABOVE CEILING EXCEPT IN EXPOSED STRUCTURE AREAS

---- CONDUIT AND/OR WIRE BELOW FLOOR OR GRADE

CIRCUITING — STROKE WITH DOT INDICATES ISOLATED GROUND CONDUCTOR

CIRCUIT BREAKER

GROUNDING ELECTRODE

SINGLE METER WITH CT

DIVISION 23 EQUIPMENT - SEE HVAC AND PLUMBING

GROUND BUS & GROUND ELECTRODES

JUNCTION BOX

NON-FUSED DISCONNECT SWITCH - 30A, 3P, UNLESS NOTED OTHERWISE

COMPANY SWITCH

TIMECLOCK

PHOTOCELL (INSTALL ON ROOF FACING NORTH)

SURFACE MOUNTED PANELBOARD

FLUSH MOUNTED PANELBOARD

HAWAII COUNTY CODE- CHAPTER 5 - BUILDING 2006 IECC & ORDINANCES 09-48 & 10-68 BUILDING ENERGY EFFICIENCY STANDARDS I CERTIFY THAT THE DESIGN IS IN CONFORMANCE WITH THE BUILDING ENERGY EFFICIENCY STANDARDS PERTAINING TO SECTION 506 ELECTRICAL POWER AND LIGHTING SYSTEMS SECTION 506 ELECTRICAL POWER AND LIGHTING SYSTEMS

Chut / lost	10/26/2012
Signature /	Date
CHRISTOPHER J. LOVETT	
Name (Print)	
ELECTRICAL ENGINEER	
Title	
14689-E	
PE or Arch. License No.	





MULTI-PURPOSE SA & IMPROVEMENT

NAKA'OLE N ADDITION

TYPE

NAME

LITHONIA

LITHONIA

COOPER

COOPER

LITHONIA

LITHONIA

LITHONIA

LITHONIA













